Health by Numbers

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Smoking among Pregnant WIC Participants in Rhode Island

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Tobacco use during pregnancy has long been recognized as an important contributor to poor birth outcomes, yet reducing this risk among low-income populations has proven challenging. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was created in response to a growing concern that low-income pregnant women, infants, and young children were not meeting nutritional guidelines. Each year WIC provides nutritious foods; nutrition education; referrals to health care and social services; and breastfeeding support to approximately 25,000 Rhode Islanders (5,750 women; 6,250 infants; 13,000 children) that meet categorical, income, and nutritional or medical risk eligibility criteria.[1] Despite Medicaid reimbursement for smoking cessation programs in Rhode Island, pregnant WIC participants here have had higher rates of maternal cigarette smoking and much lower rates of smoking cessation than pregnant WIC participants nationally.

Methods. Data were collected for participants at 28 WIC sites in Rhode Island. Records filed between June 1, 2002 and June 1, 2006 at all sites were analyzed using SAS statistical software for all women who became WIC participants while pregnant. Data related to maternal smoking were available for 21,659 women. Although the analysis included major racial and ethnic groups (i.e., White, Black, Asian, Hispanic), data for Native Americans are not presented due to very small numbers of participants. Maternal smoking at onset of pregnancy and changes in maternal smoking status during pregnancy were determined by self-report of WIC participants at consultations during pregnancy. Demographic data were determined by self-report of participants at enrollment. Trimesters of pregnancy were defined as: 1st trimester, 0-12 weeks; 2nd trimester, 13-26 weeks; 3rd trimester, 27-42 weeks. High-risk participants were defined by medical or nutritional conditions that indicated high risk for poor pregnancy or birth outcomes (e.g., low maternal weight gain, gestational diabetes, lower hemoglobin/hematocrit). All other participants were classified as low-risk.

Results. At the onset of pregnancy, 4,375 (20.2%) women self-identified as smokers. White women were 4.2 times more likely to smoke (22.5%) than Asian women (5.4%) and 1.8 times more likely to smoke than Black women (12.2%). Non-Hispanic women were 5 times more likely to smoke (27.2%) than Hispanic women (5.5%). Those with less than a high school education were 1.7 times more likely to smoke (22.2%) than those with more than a high school education (13.4%). Low-risk and high-risk participants were equally likely to be smokers at onset of pregnancy (20.2%). Women who reported English as their primary language were nearly 9 times more likely to smoke (25.8%) as those who reported a primary language of Spanish (3%). (Figure 1)

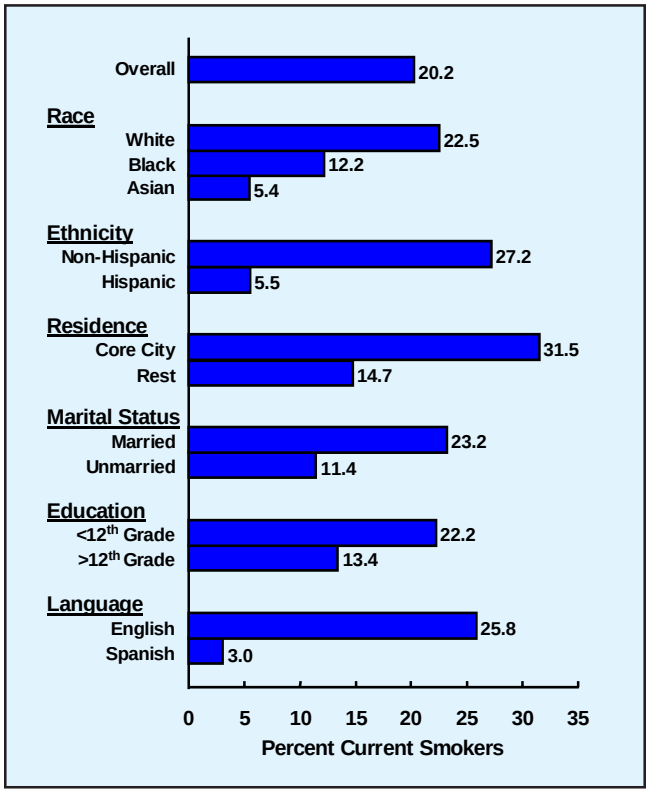

Figure 1. *Smoking at Onset of Pregnancy, by Selected Characteristics, WIC Participants, Rhode Island, 2002-2006.*

Among smokers, 1,606 (36.7%) reported a reduction in smoking during pregnancy, including 10.8% who reported that they stopped smoking completely and nearly 26% who reported a decrease in the quantity of cigarettes smoked. In contrast, 25.8% of smokers reported no change, and 32% reported an increase in smoking while pregnant. White smokers (32.8%) were more likely than Black smokers (26.7%)

to report an increase in smoking, though the groups were equally likely to report that they stopped smoking completely (10.7%). Smokers with more than a high school education were nearly twice as likely to report stopping smoking completely when compared to smokers with less than a high school education (14.6% v. 8.2%), but the groups were equally likely to report an increase in smoking (32.5% v. 30.3%). High-risk participants were approximately twice as likely as low-risk participants to report a decrease in smoking (44.7% v. 23.4%) and less than half as likely to report an increase in smoking (16.1% v. 34.2%). Smokers who enrolled in WIC during their first trimester of pregnancy were significantly more likely to report a decrease in smoking when compared to those who enrolled in their third trimester (35.6% v. 24.2%) and much less likely to report an increase in smoking (21.3% v. 34.4%). (Figures 2 and 3).

Discussion. The prevalence of maternal cigarette smoking in the Rhode Island WIC population (18%) is only slightly higher than the national rate among women in WIC (17.5%), but significantly higher than the rate for all pregnant women in Rhode Island (10.5%).[2,3] Rates of quitting smoking completely during pregnancy are much lower in the Rhode Island WIC population (10.8%) than among WIC participants nationally (40.8%).[2] This disparity may be the result of differences between WIC populations demographically, including those that lead to higher levels of maternal stress during pregnancy, or differences in data collection methods. It is also possible that these high rates of smoking are the consequence of differing success rates for smoking cessation programs in Rhode Island and the nation. Since the health detriments of fetal exposure to tobacco are well documented, it is important to address smoking behaviors among WIC participants. Since WIC participants who enrolled in the first trimester were more likely to decrease smoking and less likely to increase smoking during pregnancy when compared to those who enrolled later, programs that increase the rates of first trimester WIC enrollment may contribute to lower rates of maternal smoking in the WIC population.

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2. 2004 Pregnancy Nutrition Surveillance, Nation. Summary of Health Indicators. CDC Pediatric and Pregnancy Nutrition Surveillance System, Table 2D. Available: http://www.cdc.gov/pednss/pnss_tables/pdf/national_table2.pdf
3. Unpublished data for 2005 from the Office of Data and Evaluation, Division of Family Health, Rhode Island Department of Health.

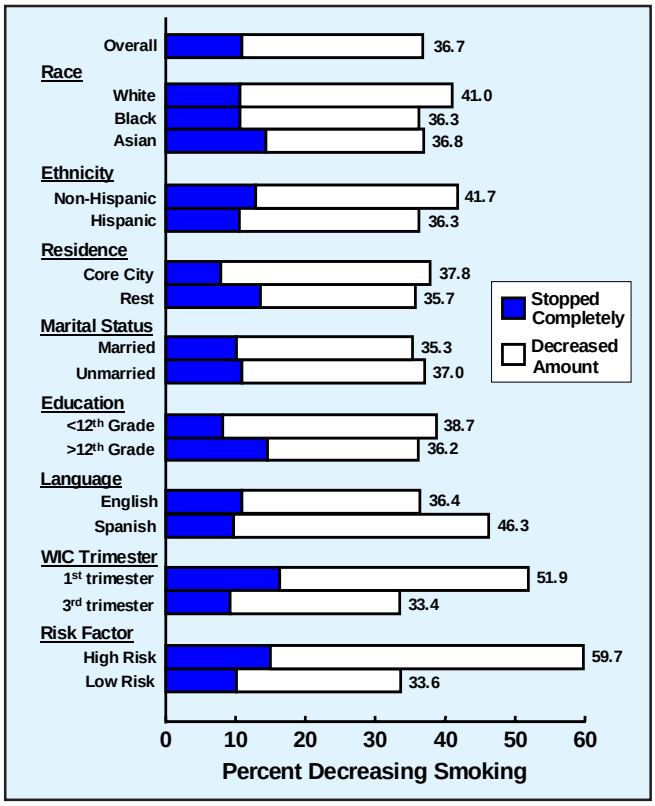

Figure 2. *Stopping Smoking or Decrease in Smoking during Pregnancy, by Selected Characteristics, WIC Participants, Rhode Island, 2002-2006.*

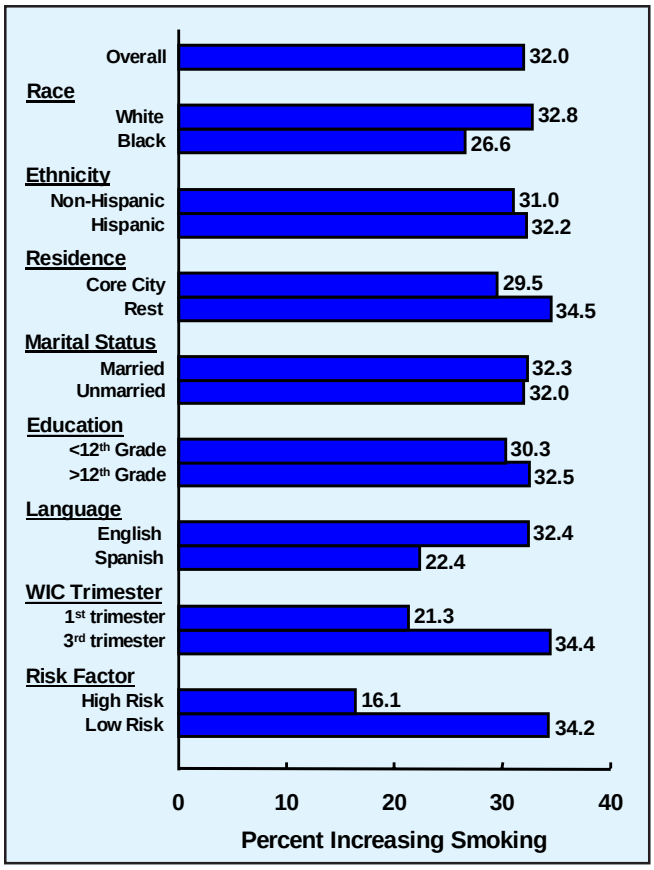

Figure 3. *Increase in Smoking during Pregnancy, by Selected Characteristics, WIC Participants, Rhode Island, 2002-2006.*

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